



Registry Driven Exchange Servers for eGovernment Communities

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Contents

Registry-driven Exchanges - building blocks

- ◆ Features
- ◆ Components
- ◆ Capabilities

Demonstration: Self-Provisioning Services

- ◆ Business requirements
- ◆ Example implementation

Summary and Opportunities

- ◆ CDC/PHIN scenarios
- ◆ Healthcare services integration





Registry-driven Exchanges

Overview of the
Approach and
Capabilities

Exchange Features

Goal is to provide for:

- Ability to support a diverse and large community
- Low cost of adoption
- Rapid deployment and agile environment
- Reduced support and management costs
- Broad applications and legacy compatibility
- Empower digital integration and reduce paper
- Enable knowledge integration for G2B and G2C



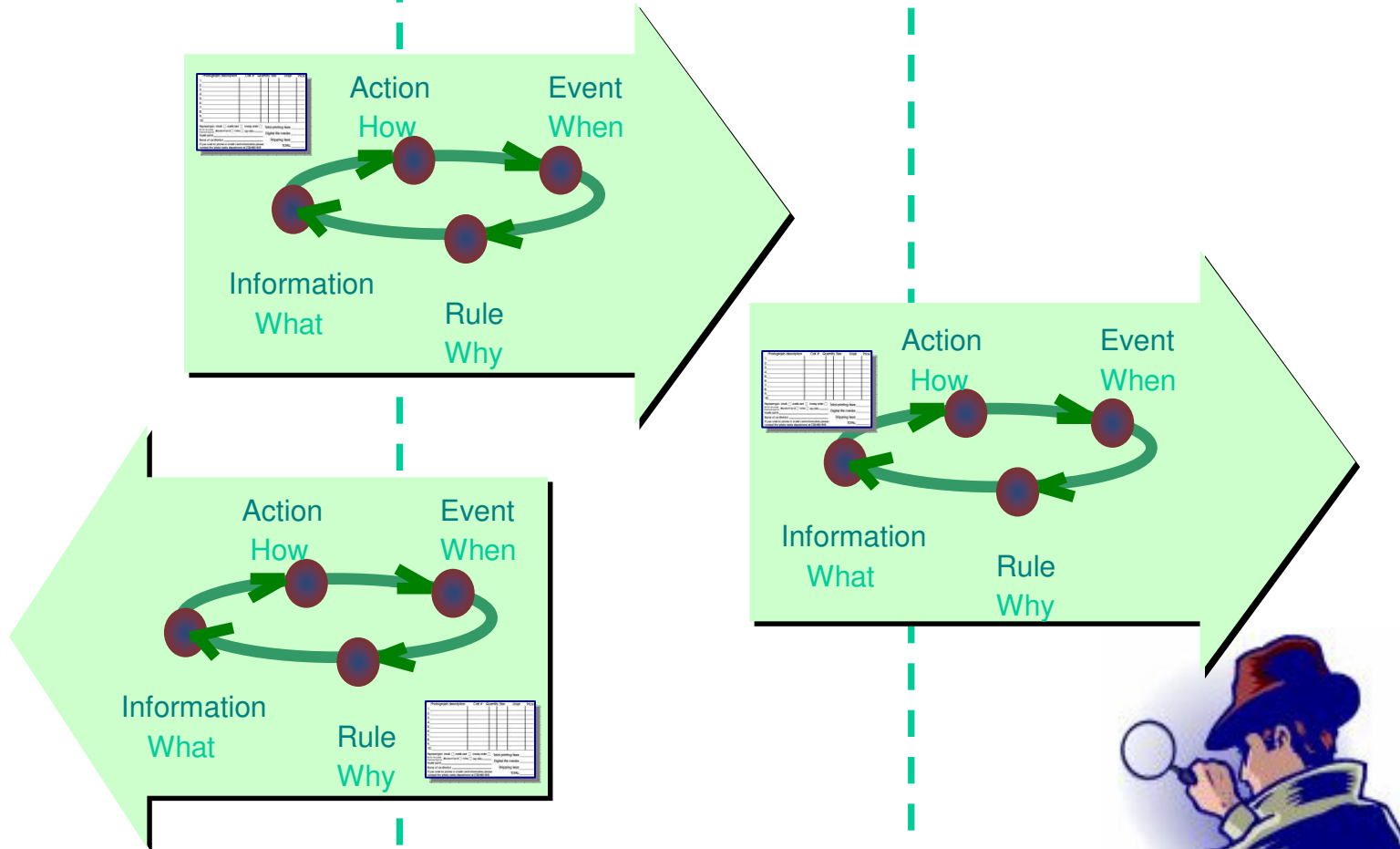
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How do you put this all together?

Where / Who

Where / Who

Where / Who



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Exchange Components

Information Exchange Integration requires:

- Outward facing messaging systems
- Formal agreement profiles for business participants
- Business process workflow definitions
- Information exchange rules
- Registry to hold agreements, definitions, scripts...
- Internal integration queues and dispatch methods
- User interfacing for entry and control



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Exchange Capabilities

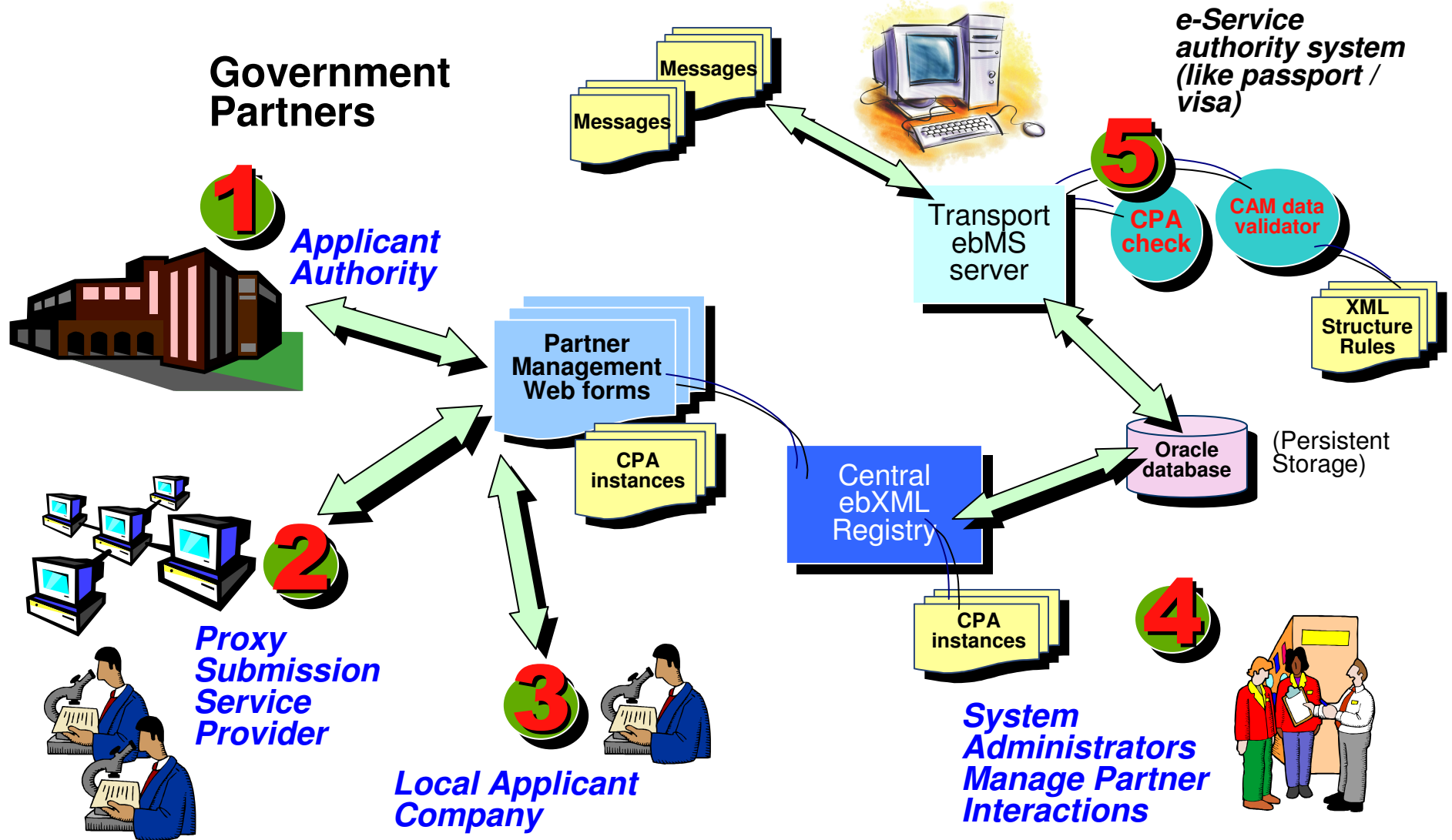
The NIH design supports:

- Automated registration of participants
- Ability to self-certify exchange data
- Version control and ability to approve partners
- Declared and shared business rule scripting
- Centralized registry for participant management
- Integration through messaging services
- Backend application integration queues
- Uses open public specifications and open source



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Implementation Overview





Demonstration

Exchange Services -
Architecture and
Details



Partner Registration

User Interface provides for:

- ◆ Existing partner subscribing to electronic submissions
- ◆ Proxy Service provider for participants
- ◆ System Administration of CPA profiles
- ◆ Interactive transaction validation services

***Partner
Registration***



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Partner Self-Certification

Overview of functionality

Example of rules for sample transactions

Live demonstration:

- ◆ interactive transaction processing
- ◆ batch error transaction processing

Integration with registry as validation service

***View
Input XML***

***On-line
Testing***

***Message
Reporting***

***Simple
Template***

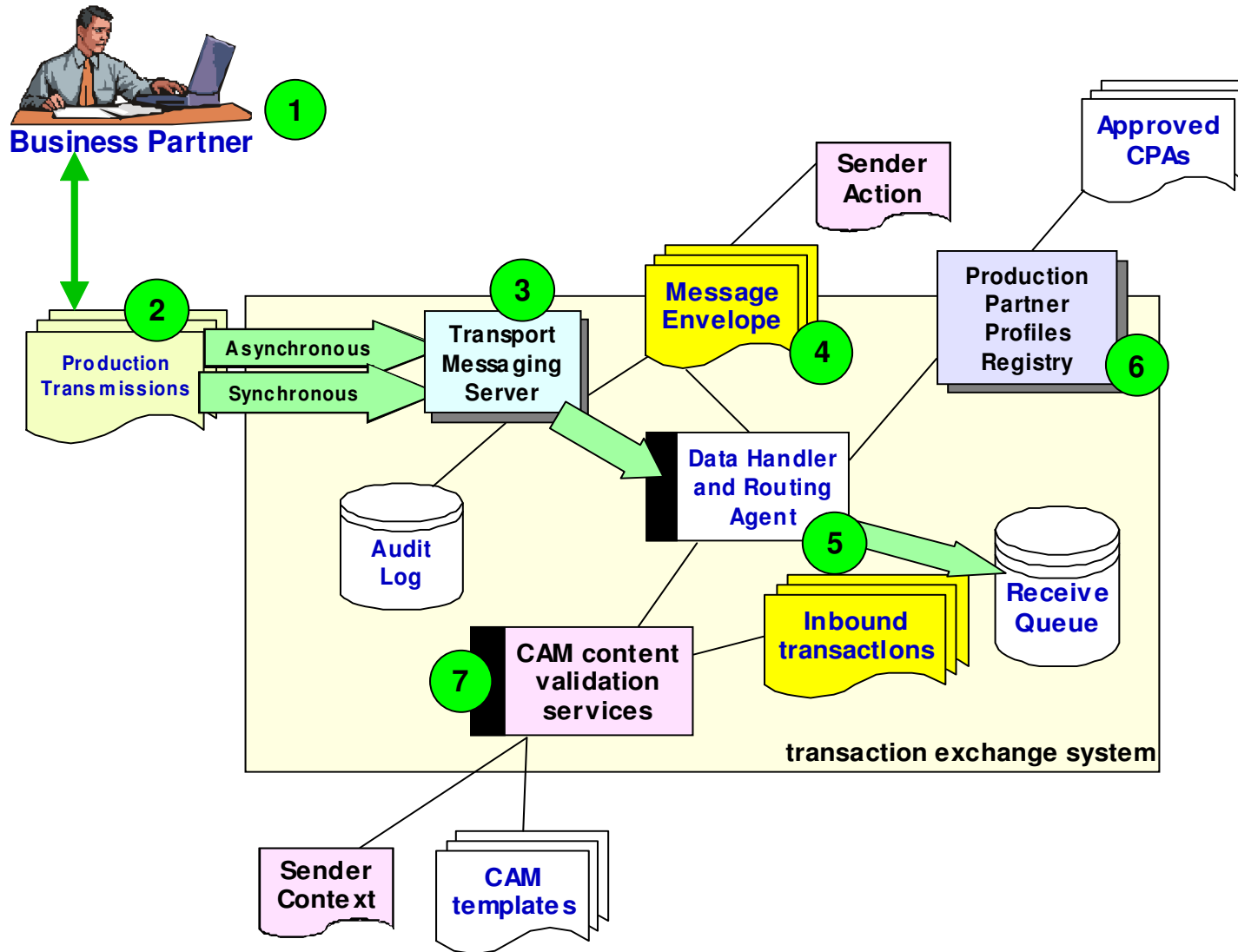
***Extended
Template***

***Output
Formatting***



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Exchange Operational Process Flow



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Linkage Between Messaging and CPA

Messaging envelope contains:

- ◆ Sender name
- ◆ Service / Action names
- ◆ Sender CPA id value
- ◆ Receiver CPA id value
- ◆ Optional certificate

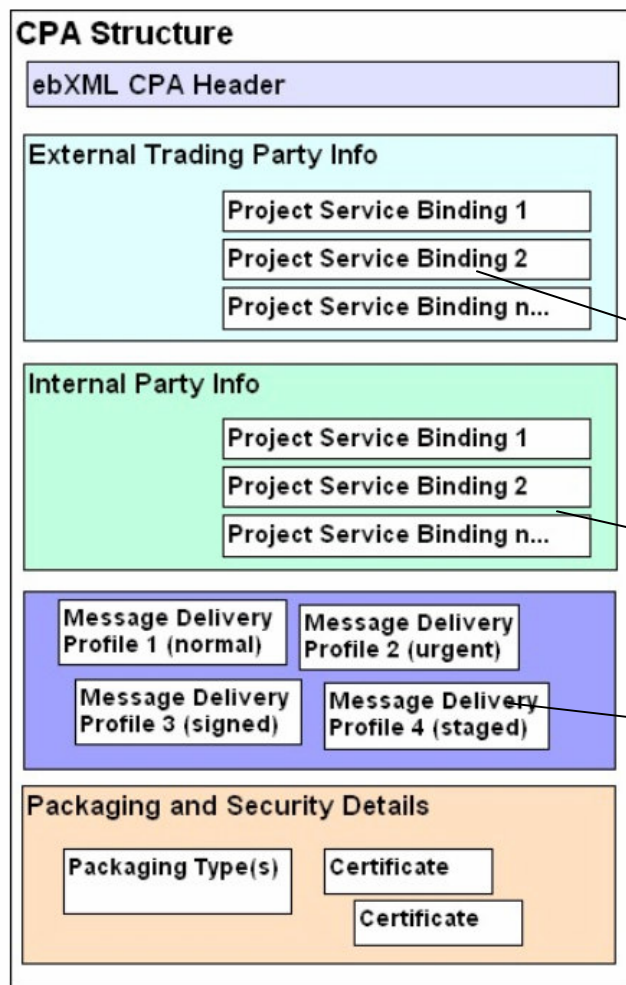
CPA validation contains:

- ◆ CPA id lookup to registry
- ◆ Verifies sender
- ◆ Verifies valid Service / Action pairs for this partner
- ◆ Coupling from Service / Action to transaction validation
- ◆ Coupling from Service / Action to backend delivery
- ◆ Verify certificate



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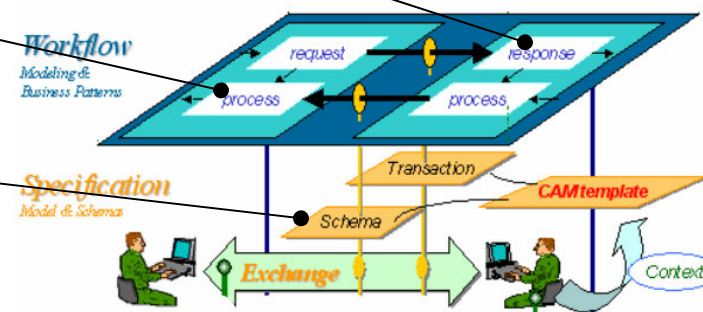
CPA Structure Overview



(Project Service Binding contains:
CanSend elements
CanReceive elements)

(Message Delivery Profile contains:
DeliveryChannel elements
MessageExchange elements)

(Packaging and Security contains:
Types of message formatting
Digital Certificates to be used)



http://www.oasis-open.org/committees/download.php/253/cpa-example-2_0b.xml



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ebXML CPA functions

ebXML CPA provides:

- ✓ Service name and parameters
- ✓ Endpoint for invocation
- ✓ Role of an organization in the context of a service
- ✓ Organization demographic information
- ✓ Failure scenarios
- ✓ Business process scenario and business transaction activity step
- ✓ Link to partner responsibilities
- ✓ Transaction Messages being exchanged
- ✓ Transport level QOS parameters
- ✓ Certificate and Encryption configuration
- ✓ Business status of agreement



Constructing Collaboration Agreements

(DUNS
Party ID
Company
Contact
Web site
Process
Role
Status
Description)

PARTNER A CPA ebXML	
AGREEMENT DATE: Year: 2004 Month: 10 Day: 09 Time: 01:01:00 Until: 2006	
	CPA Status: agreed
Party Name: Company_A	CPA ID: ABC-12345-XZDF-01
DUNS ID: 123456	Invocation limit: 100 000
Alt: AAA	CPA version: 2.1a
Contact EMail: contact@companyAwebsite.com	Concurrent threads: 20
Preferred standard: Industry Messages	Web site: http://companyAwebsite.com
Process Name: Our Business Process	ID type: DUNS
Process Script URL: http://ourwebsite.com/bpss/default.xml	Role: initiator
Description: This is default ebXML Partner Agreement using agreed industry messages and business process definitions	Agreement Ref: autotech-bods-01
	Reference URL: http://ourwebsite.com/cpa/

COLLABORATION AND ROLE DOCUMENTATION:	
Business Process ID Name: grant_application	UUID or URN: urn:ebxml.org:bpid:ABC52.0
http doc reference: http://www.ebxml.org/any/#bpss	
Role: Responder	Role doc reference: http://www.ebxml.org/any/#roles

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Process Linkage

BUSINESS PROCESS DEFINITIONS		
PROCESS CONTEXT	Action or Intent: newApplication	Transaction Activity: businessStep
	Collaboration name: grants application	
PROCESS CONTEXT	Action or Intent: confirmSubmission	Transaction Activity: businessStep
	Collaboration name: grants application	
PROCESS CONTEXT	Action or Intent: acknowledgeReceipt	Transaction Activity: businessStep
	Collaboration name: grants application	
PROCESS CONTEXT	Action or Intent: confirmApplication	Transaction Activity: businessStep
	Collaboration name: grants application	

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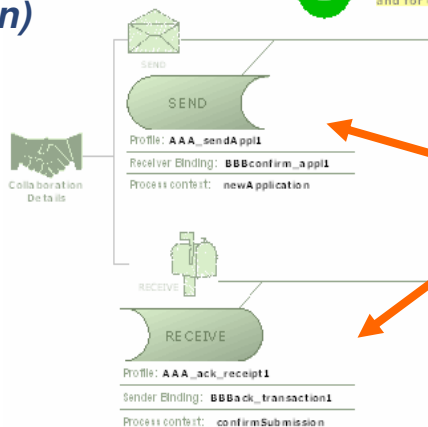
Participant Information

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DELIVERY ACTION PROFILES FOR FIRST PARTNER			
Service Name: grants application	Action: newApplication		
Binding ID: AAA_sendAppl1	Package Type: DefaultComposite	Is Authenticated: none	
PARAMETERS	Nonrepudiation Required: true	Nonrepudiation Receipts: true	TimeToAcknowledge: PT2H
	Is confidential: none	Is Authorization Required: false	TimeToPerform: P1D
	Channel ID: channel_http_Async_NoSec_noRm	Is TamperProof: none	
Service Name: grants application	Action: confirmSubmission		
Binding ID: AAA_ack_receipt1	Package Type: DefaultComposite	Is Authenticated: none	
PARAMETERS	Nonrepudiation Required: true	Nonrepudiation Receipts: true	TimeToAcknowledge: PT2H
	Is confidential: none	Is Authorization Required: false	TimeToPerform: P1D
	Channel ID: channel_http_Async_NoSec_noRm	Is TamperProof: none	

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(Each Send and Receive object must be unique reference pairs, and for each set, the partner must have the inverse object)



Message exchange details

Messaging preferences



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Controlling Versioning via CPA id

- Using Receiver CPA id value to manage versioning
- Partner can publish to public registry a generic CPA that contains a reference CPA id value and outbound service / actions.
- Value of CPA id corresponds to specific version of system: e.g. NIHxCHG-eCGAP-010105-01
- Can be used to switch between inbound routing to test and production environments.
- This also allows explicit sub-versioning within the delivery handling, transaction validation and routing.
- Allows partners to automatically configure their delivery systems by looking up CPA details from registry via CPA id value.





Summary and Opportunities

CDC/PHIN Scenarios
and
Healthcare Services
Integration

What You Just Saw

- Theory and implementation of exchange approach
- XML templates for validation
- Management of automatic response messages
- Demonstration of on-line transaction testing service
- Use of registry to manage CPA documents



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Lessons Learned

- Providing self-service facilities is key to rapid adoption
- Infrastructure exists today off-the-shelf to create pre-built templates for industry domains
- Using open specifications allows integration into wide range of environments
- Open source solutions allows partners to readily obtain technology
- Use of CPA id to manage partners and versioning



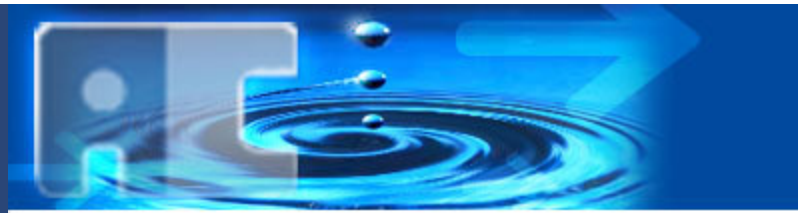
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Opportunities

- Create infrastructure that can manage large communities via registry-managed control mechanisms
 - ◆ Provide simple integration for external partners by providing open source solutions as base-line
 - ◆ Supports commercial tools that implement ebMS V2.0+
 - ◆ Built-in methods that allow centralized control over rules, versions, and delivery routing
 - ◆ Reasonable security without being overly inhibiting to adoption
 - ◆ Complete integrated audit trail logging
- Available using today's specifications and toolsets
 - ◆ Proven technology with wide adoption and proven deployments



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Q & A

Discussion

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Software Components

Open Source components

'Hermes' freebXML ebXML messaging server

'OMAR' freebXML Registry system

jCAM content assembly mechanism and validation component with versioning capability

Oracle database server

Tomcat Server

Technology Specifications

- <http://ebxml.org>
- <http://oasis-open.org>
- <http://ebxmlbook.com/interop/>



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Resources

www.freebXML.org

www.ebxml.org

www.oasis-open.org

www.ebxmlbook.com/interop

www.ebxmlbook.com/benefits

www.ebxmlforum.org



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